

Appl. No. 10/033,205  
Amdt. dated September 30, 2004  
Reply to Office Action of April 2, 2004

**REMARKS/ARGUMENTS**

In the Non-final Office Action mailed April 2, 2004, claims 1, 4-10, 13-21, and 23 were examined. The claims were rejected as follows:

- Claims 1, 4-10, 13-21, and 23 were rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement.
- Claims 1, 4-10, 13-21, and 23 were rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement.
- Claims 1, 4, 6-8, 13-21, and 23 were rejected under 35 U.S.C. § 102(b), as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over, U.S. Patent No. 5,948,862 to Sano et al. ("the Sano patent").
- Claims 1, 4-8, 13-21, and 23 were rejected under 35 U.S.C. § 102(e), as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over, U.S. Patent No. 6,359,065 to Yabuki ("the Yabuki patent").
- Claims 1, 4, 6-8, 13-21, and 23 were rejected under 35 U.S.C. § 102(e), as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over, U.S. Patent No. 6,210,291 to Kato et al. ("the Kato patent").
- Claims 1, 5-10, and 13-21 were rejected under 35 U.S.C. § 102(b), as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over, U.S. Patent No. 5,717,014 to Ohkawachi et al. ("the Ohkawachi patent").
- Claims 1, 4, 6-8, 13-21, and 23 were rejected under 35 U.S.C. § 102(b), as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over, JP 2000026677 to Nakata et al. ("the Nakata patent").

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Applicant respectfully traverses these rejections, for the reasons set forth below.

### **The Invention**

Before addressing the specific claim rejections, it will be helpful first to briefly summarize the invention defined by the pending claims.

The invention is embodied in a golf ball component selected from the group consisting of a cover and an intermediate layer located between a golf ball core and a cover, the golf ball component incorporating a particular triblock copolymer, an ionomeric base polymer, and a polymeric modifier. The triblock copolymer has a first polymer block comprising an aromatic vinyl compound. The triblock copolymer also includes a second polymer block, which includes a first compound selected from the group consisting of a diene compound and a hydrogenation product of the diene compound. In addition, the triblock copolymer includes a third polymer block including a second compound selected from the group consisting of a diene compound, a hydrogenation product of the diene compound, and an aromatic vinyl compound. Furthermore, the triblock copolymer includes at least one hydroxyl group. The polymeric modifier is selected from the group consisting of methyl methacrylate butyacrylate styrene, methyl methacrylate ethyl hexylacrylate styrene, methacrylate-butadiene-styrene, ethylene vinyl acetate, acrylonitrile-butadiene-styrene, chlorinated polyethylene, a polymer including a maleic anhydride group, and mixtures thereof.

The base polymer can incorporate an ionomeric polymer comprising copolymeric polymers, terpolymeric polymers, or mixtures of these. The ratio by weight of the triblock copolymer to the base polymer in the golf ball component preferably ranges between about 10:90 and about 90:10, more preferably between about 10:90 and about 70:30, and most preferably between about 10:90 and about 60:40.

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When incorporating the impact modifier, the golf ball component incorporates the impact modifier in an amount between about 0.1 and about 15 parts per hundred by weight of the total amount of the triblock copolymer and the base polymer, and more preferably between about 1 and about 10 parts per hundred. Particularly preferred impact modifiers include acrylic impact modifier, ethylene vinyl acetate, polyaryl ether, acrylonitrile-butadiene-styrene, methacrylate-butadiene-styrene, chlorinated polyethylene, or mixtures of these. Particularly preferred acrylic impact modifier includes methyl methacrylate butylacrylate styrene, methyl methacrylate ethyl hexylacrylate styrene, or mixtures of these. When incorporating the functionalized polymer, the golf ball component preferably incorporates the functionalized polymer in an amount between about 0.1 and about 15 parts per hundred by weight of the total amount of the triblock copolymer and the base polymer, more preferably between about 1 and about 10 parts per hundred. The golf ball component preferably incorporates a total amount of polymeric modifier less than about 20 parts per hundred by weight of the total amount of the triblock copolymer and the base polymer, and more preferably less than about 15 parts per hundred.

Golf ball components within the scope of the present invention also can incorporate UV stabilizers, photostabilizers, photoinitiators, co-initiators, antioxidants, colorants, dispersants, mold releasing agents, processing aids, inorganic fillers, organic fillers, or mixtures thereof.

The invention also resides in a method for making a golf ball component selected from the group consisting of a cover and an intermediate layer located between a golf ball core and a cover, the method including preparing a composition comprising the above-specified triblock copolymer, an ionomeric base polymer, and a polymeric modifier as defined above, and then incorporating the composition into the golf ball component. The step of preparing the composition can incorporate dry-blending the composition, or it can incorporate mixing the composition using a mill, internal mixer, or extruder. The step of mixing the composition also can incorporate melting the composition.

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**The Rejection of Claims 1, 4-10, 13-21, and 23 Under 35 U.S.C. § 112, First Paragraph –  
Written Description Requirement**

On page 2 of the Office Action, claims 1, 4-10, 13-21, and 23 were rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. In particular, the Examiner stated the following: "Claims 1, 18 and 23 require the 'end group' of (c) (ii) to be certain structures. There is no basis in the specification to require 'end group' to be anything." Applicant respectfully traverses this rejection.

Applicant has amended independent claims 1, 18, and 23 to remove the words "end group." Applicant has canceled dependent claim 5, and thus, the Examiner's rejection of that claim is moot. Accordingly, Applicant believes that remaining claims 1, 4, 6-10, 13-21, and 23 comply with § 112, first paragraph, and respectfully requests withdrawal of this rejection.

**The Rejection of Claims 1, 4-10, 13-21, and 23 Under 35 U.S.C. § 112, First Paragraph –  
Enablement Requirement**

Also on page 2 of the Office Action, claims 1, 4-10, 13-21, and 23 were rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement. In particular, the Examiner stated the following: "How does one ensure the functional groups of (c) (ii) will be located at the 'end group'. Normal random polymerization will locate these functional groups along the length of the polymer chain." Applicant respectfully traverses this rejection.

Applicant has amended independent claims 1, 18, and 23 to remove the words "end group." Applicant has canceled dependent claim 5, and thus, the Examiner's rejection of that claim is moot. Accordingly, Applicant believes that remaining claims 1, 4, 6-10, 13-21, and 23 comply with § 112, first paragraph, and respectfully requests withdrawal of this rejection.

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**The Rejection of Claims 1, 4, 6-10, 13-21, and 23 Based on the Sano Patent**

On pages 2 and 3 of the Office Action, independent claims 1, 18, and 23, and dependent claims 4, 6-8, 13-17, and 19-21, were rejected under 35 U.S.C. § 102(b), as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over, the Sano patent. Applicant respectfully traverses these rejections.

The Sano patent discloses a golf ball having a core, one or more intermediate layers, and a cover. The intermediate layer is formed of a heated mixture including at least two of the following: an ionomer resin, a thermoplastic elastomer having terminal OH groups, and an epoxy group. The epoxy group includes styrene-butadiene-styrene block copolymer or styrene-isoprene-styrene block copolymer. Regarding the Sano patent, the Examiner on pages 2 and 3 of the Office Action stated the following:

Sano exemplifies (Table 2) compositions for intermediate layers of golf balls. The composition contains ionomer (applicant's base), HG-252 (applicant's hydroxylated block polymer) and epoxidized block polymer.

The epoxidized block polymer qualifies as a functionalized polymer having a glycidyl group, because the epoxidation of the 1,2, addition diene units will result in glycidyl units.

Independent claims 1, 18, and 23 have been amended to include the requirement that the golf ball composition includes "a polymeric modifier selected from the group consisting of methyl methacrylate butylacrylate styrene, methyl methacrylate ethyl hexylacrylate styrene, methacrylate-butadiene-styrene, ethylene vinyl acetate, acrylonitrile-butadiene-styrene, chlorinated polyethylene, a polymer including a maleic anhydride group, and mixtures thereof." The Sano patent *fails* to teach or suggest this requirement of amended independent claims 1, 18, and 23. Furthermore, it would not have been obvious to one skilled in the art to modify the teachings of the Sano patent to satisfy the requirements of independent claims 1, 18, and 23. For these reasons, the § 102 rejection and the alternative § 103 rejection of independent claims 1, 18, and 23, and dependent claims 4, 6-8, 13-17, and 19-21, are improper and should be withdrawn.

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**The Rejection of Claims 1, 4-8, 13-21, and 23 Based on the Yabuki Patent**

On page 3 of the Office Action, independent claims 1, 18, and 23, and dependent claims 4-8, 13-17, and 19-21, were rejected under 35 U.S.C. § 102(e), as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over, the Yabuki patent. Applicant has canceled dependent claim 5, and, thus the Examiner's rejection of that claim is moot. Applicant respectfully traverses these rejections of remaining claims 1, 4, 6-8, 13-21, and 23.

The Yabuki patent teaches a golf ball having a solid core and a cover formed from a heated mixture of: an ionomer resin, a thermoplastic elastomer having a carboxyl group or a terminal OH group, and a block copolymer. The block copolymer has a styrene-butadiene-styrene structure or a styrene-isoprene-styrene structure. Regarding the Yabuki patent, the Examiner on page 3 of the Office Action stated the following: "Yabuki exemplifies (# 7) blends of ionomer, HG252, Himilan 1855 and epoxidized block polymer. The ionomer qualifies as applicant's base polymer (b). The epoxidized block polymer qualifies as applicant's base polymer (b) or glycidyl functionalized polymer (c). The Himilan 1855 qualifies as applicant's carboxylic functional polymer (c) as it is only partially neutralized . . ."

Independent claims 1, 18, and 23 have been amended to include the requirement that the golf ball composition includes "a polymeric modifier selected from the group consisting of methyl methacrylate butylacrylate styrene, methyl methacrylate ethyl hexylacrylate styrene, methacrylate-butadiene-styrene, ethylene vinyl acetate, acrylonitrile-butadiene-styrene, chlorinated polyethylene, a polymer including a maleic anhydride group, and mixtures thereof." The Yabuki patent *fails* to teach or suggest this requirement of amended independent claims 1, 18, and 23. Furthermore, it would not have been obvious to one skilled in the art to modify the teachings of the Yabuki patent to satisfy the requirements of independent claims 1, 18, and 23. For these reasons, the § 102 rejection and the alternative § 103 rejection of independent claims 1, 18, and 23, and dependent claims 4, 6-8, 13-17, and 19-21, are improper and should be withdrawn.

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**The Rejection of Claims 1, 4, 6-8, 13-21, and 23 Based on the Kato Patent**

Also on page 3 of the Office Action, independent claims 1, 18, and 23, and dependent claims 4, 6-8, 13-17, and 19-21, were rejected under 35 U.S.C. § 102(e), as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over, the Kato patent. Applicant respectfully traverses these rejections.

The Kato patent teaches a golf ball having a thread-wound core and a cover covering the thread-wound core. Regarding the Kato patent, the Examiner on page 3 of the Office Action stated the following: "Kato suggests golf ball covers of ionomer, hydroxyl terminated elastomer and epoxy modified elastomer . . . The hydroxyl terminated elastomer can be HG 252 . . . The epoxy polymer can be an ethylene/glycidylacrylate polymer . . ."

Independent claims 1, 18, and 23 have been amended to include the requirement that the golf ball composition includes "a polymeric modifier selected from the group consisting of methyl methacrylate butylacrylate styrene, methyl methacrylate ethyl hexylacrylate styrene, methacrylate-butadiene-styrene, ethylene vinyl acetate, acrylonitrile-butadiene-styrene, chlorinated polyethylene, a polymer including a maleic anhydride group, and mixtures thereof." The Kato patent *fails* to teach or suggest this requirement of amended independent claims 1, 18, and 23. Furthermore, it would not have been obvious to one skilled in the art to modify the teachings of the Kato patent to satisfy the requirements of independent claims 1, 18, and 23. For these reasons, the § 102 rejection and the alternative § 103 rejection of independent claims 1, 18, and 23, and dependent claims 4, 6-8, 13-17, and 19-21, are improper and should be withdrawn.

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**The Rejection of Claims 1, 5-10, and 13-21 Based on the Ohkawachi Patent**

On pages 3 and 4 of the Office Action, independent claims 1 and 18, and dependent claims 5-10, 13-17, and 19-21, were rejected under 35 U.S.C. § 102(b), as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over, the Ohkawachi patent. Applicant has canceled dependent claim 5, and thus, the Examiner's rejection of this claim is moot. Applicant respectfully traverses these rejections of remaining claims 1, 6-10 and 13-21.

The Ohkawachi patent, as stated in column 2, lines 23 to 35, teaches the following:

a PPE [polyphenylene ether] resin composition containing the following Components (A) to (D) at the following formulation ratio.

- (A) 50 to 99.5 parts by weight PPE
- (B) 0.5 to 50 parts by weight of a partially hydrogenated aromatic alkenyl compound-conjugated diene block copolymer having a hydroxy group based on the total amount of Components (A) and (B) being 100 parts by weight.
- (C) 0 to 950 parts by weight of a thermoplastic resin other than the above (A) and (B) and
- (D) 0 to 10 parts by weight of a phosphorous acid triester.

Regarding the Ohkawachi patent, the Examiner on page 3 of the Office Action stated the following: "Ohkawachi exemplifies (#6) blends of PPE (applicant's base), HG-252 (applicant's triblock) and ABS (applicant's impact modifier) . . ."

However, the PPE taught in the Ohkawachi patent, and analogized by the Examiner to be Applicant's base, is a non-ionomeric material, and thus, *does not* satisfy the requirement of amended independent claims 1 and 18 that the base polymer be ionomeric. Furthermore, it would not have been obvious to one skilled in the art to modify the teachings of the Ohkawachi patent to satisfy the requirements of independent claims 1 and 18. For these reasons, the § 102 rejection and the alternative § 103 rejection of independent claims 1 and 18, and dependent claims 6-10, 13-17, and 19-21, are improper and should be withdrawn.



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**The Rejection of Claims 1, 4, 6-8, 13-21, and 23 Based on the Nakata Patent**

On page 4 of the Office Action, independent claims 1, 18, and 23, and dependent claims 4, 6-8, 13-17, and 19-21, were rejected under 35 U.S.C. § 102(b), as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over, the Nakata patent. Applicant respectfully traverses these rejections.

The Nakata patent teaches an alpha olefin-unsaturated-carboxylic-acid copolymer system ionomer resin. Regarding the Nakata patent, the Examiner on page 4 of the Office Action stated the following: "The reference is believed to exemplify (#5-7) blends of ionomer, hydroxyl terminated styrene-diene-styrene block polymer and a third block polymer. This third block polymer is believed to contain acrylic acid units (paragraph 40,42,44). These qualify as applicant's carboxylic functional polymers (c)."

Independent claims 1, 18, and 23 have been amended to include the requirement that the golf ball composition includes "a polymeric modifier selected from the group consisting of methyl methacrylate butylacrylate styrene, methyl methacrylate ethyl hexylacrylate styrene, methacrylate-butadiene-styrene, ethylene vinyl acetate, acrylonitrile-butadiene-styrene, chlorinated polyethylene, a polymer including a maleic anhydride group, and mixtures thereof." The Nakata patent *fails* to teach or suggest this requirement of amended independent claims 1, 18, and 23. Furthermore, it would not have been obvious to one skilled in the art to modify the teachings of the Nakata patent to satisfy the requirements of independent claims 1, 18, and 23. For these reasons, the § 102 rejection and the alternative § 103 rejection of independent claims 1, 18, and 23, and dependent claims 4, 6-8, 13-17, and 19-21, are improper and should be withdrawn.

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**Conclusion**

This application should now be in condition for a favorable action. Allowance of the application is respectfully requested. If for any reason the Examiner finds the application other than in allowance, the Examiner is requested to call the undersigned attorney at the below-indicated telephone number to discuss the steps necessary for placing the application in condition for allowance. If there are any fees due in connection with the filing of this Amendment, please charge the fees to our Deposit Account No. 19-1853.

Respectfully submitted,  
SHEPPARD, MULLIN, RICHTER & HAMPTON LLP

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